

The Effect of Augmented Reality

“Looking at virtual reality through computer screens, video game screens and above all television screens is a denial of personality development. It’s a denial of socialization of expansion of vocabulary, of interaction with real human beings.” – Ralph Nader

Technology is known as a step closer to the future, a future that can bring to life things that before were only seen in movies. There is nothing more fascinating than being able to be in a virtual world, a world created in the likeness of its creator. Yet, having an augmented reality (AR) can become a new threat to humanity. Why would augmented reality and virtual reality be a threat? It is simple: it can cause psychological damage, there is no place for businesses, and most importantly there are not actual laws or rules for a game, which leads to an ethical dilemma of whether it should be led by the small communities and the set of rules made by engineers. Also, is it ethical to dispose of real-life for a virtual one?

There are different ways to interpret augmented reality (AR) and virtual reality (VR), some wouldn’t know what augmented reality is, but some do know virtual reality. Augmented reality is when all five senses are used to interact with objects in the physical world, while virtual reality is an artificial environment that doesn’t include the physical world or objects. “AR is a unique step forward [to experience] digital media, because it liberates that data from its two-dimensional box to make it truly appear to be three-dimensional.” (Wasson, p.7) It is true that the user’s experience with AR and VR together bring a world of fantasy to life; yet, there are some things that need to be considered before taking a step forward. The manufacturing process of AR devices is one, because if AR combines real scenes of our world, then it needs a computer application that can support it and run effectively. The purpose of studying and knowing how AR works is crucial. It needs to be evaluated before hitting the market. The study that was made is “based on a multi-criteria analysis to support production managers, to reduce effort and time required.” (Experts Systems with Applications, 63) Knowing this, it might be possible to create a friendly environment in which AR comes to life and people as well as users start sharing personal information as well as their location with avatars or just by being online. Sounds good, but users should not be taking this lightly, we have seen how Pokémon Go has taken over streets and users have gone to places that are restricted to the public.

The emergences of what augmented reality can become without rules or law to restrict users from acting on their own without thinking of the consequences is something that has not been taken seriously, especially by players. For example, when Pokémon Go first launched, it took a few weeks before it started showing some flaws in its application, when users enable their location to find what they called “pokestops” it gives away their location to other players. This has allowed for “Pokéstalking”, it can be unbelievable for some that a simple game can reach this kind of manifestation. Like in any online game or social media, things like harassment are included in the package of AR and VR; but if we compare both, VR offers anonymity to its users and it makes it a little hard to know who is who in the virtual world, “to identify avatars or Twitter accounts as human beings.” (Wired Opinion) This is where augmented reality comes into play, AR doesn’t offer anonymity, which makes it easier to find and track someone from the game. Does this make it unethical? People who play online games don’t pay attention to what the terms of service must say about personal information being used or collected. “Developers of AR games must realize that using the physical world as a gaming space makes it possible for harassment to enter that world as well” because developers have created a competitive environment in which players must compete in the real world and users know where to find and locate someone using the same application.

The responsibility to make a safer environment for a user who plays AR or VR games belongs to its developer, he or she who has control over what the game must be about and how it can affect the user and their surroundings. The user has the responsibility to know the terms of services before engaging in an AR game, which can bring not just fun; but the possibility to die in the real world in which the game is being played. On the other hand, this does not only affect the user, but the people around them, many have never played online and many don’t like people going inside their property just because their phone is telling them that there’s a Pokémon around. Players’ behavior is not justified by a game, if they entered a property without permission, the law must punish them. Does the company or developer have the authority to defend its users from imprisonment? Are they willing to stand up and accept their mistakes? They might not do it if their terms of services protect them from being sued. Wasson mentioned in his book that the constitution does not protect personal privacy and because of that, the state legislatures have come up with their own virtual laws “[chosen]

within the very loose boundaries established by the Constitution” (Wasson, p. 46) The government has failed many times to protect its citizens’ privacy, and with new and refined technology such as AR devices there will be more privacy concerns around the world. “[N]ew developments in technology have, as a result, been little examined for their impacts on the rights and freedoms intended to be guaranteed under our Constitutional tradition.” (Tatum, p.42) J.S. Tatum explains how technological advances and liberty have been taking part in the STEM field. Rules and decisions have always been taken for granted, but the consumers and researchers as well as developers have always been untouchable, then again, the assumption that because the developers created VR and AR doesn’t mean that they have the right “to live as they choose or simply be “left alone”(Tatum, p.43) once trouble emerges.

In VR, things seem simpler, but when we look deeper, there is darkness inside. Not everything is colorful and splendid to its users. This is because virtual worlds are created to represent the human being as something they wish they were in real-life. Not everyone lives in a fantasy, but when someone’s life now depends on how well you play and how many online friends you have, it becomes a “digital world [that] deals directly with human expressions of feelings, emotions and ideas.” (Computer Networks, p. 2) leading to some undesirable consequences. Playing a game can sometimes cause someone to be unable to distinguish a virtual world and the real world in which we live. Users (players) can find themselves attracted to how well life is in a virtual world. No rules, nothing that can stop them from confusing reality with virtual reality. Virtual interface games such as Cybertown, Sims, Final Fantasy, and Grand Theft Auto are a few virtual games that are known as MMORPGS. “With the emergence of avatar-built virtual realities the user has gained control over elements of the development of their online three-dimensional experience.” For example, sionChicken designed by a college student whose first language is not English, but had created a virtual game in which he has designed a virtual farm that has “led to the creation of chicken farms and the mass sale and distribution of these curious virtual entities” (Reymers, p.2) in which players’ trading and doing business virtually are possible but not recommended. Although, having a farm that reproduces chickens is great and has its profits, there was no consideration for its neighbors. The game began to take the opposite effect, instead of being kind and waiting patiently for an egg to hatch and feeding the chickens. Many users began to kill them and started a massacre.

This brought another ethical issue to the table, virtual chickens were getting shot and killed, and the only thing that Second Life did was ban those who went against their terms of services. So, “if you incorporate the bad guys into your narrative, and they cease to be able to do any harm! Is narrative the replacement for law in the virtual world?” (Reymers, p.2).

After all, no one can die in a virtual world, but what if this was to happen in the real world? There must be a punishment and consequences to those who go against the law. Otherwise, who is going to punish those who commit crimes? Such is the trauma that some users experience that they cannot control their emotions, “[t]he illusion of reality lies not in the machinery itself but in the worlds depiction by [(Multi-User Program)] MUD programs as if they were real.” (Reymers, p.6) The fact that law does not exist in a virtual world and everything is up to the player, whether the players wants to hold onto their values and freedom is up to them. In real-life, users do not have the freedom to kill or go over the law, because society has rules, there is the law of the people. These laws protect its citizens from threats and give them the opportunity to find help. This is another big difference between AR and VR, a difference that needs to be considered if AR succeeds in expanding. It needs to consider the mental health of its users, because if in a virtual world users carried virtual guns and killed as they please, a law should be implemented to ensure every players’ and others’ safety. It’s not just the mental health of the players, but the risk to have AR in the real world where “[AR] software integrates the real world with virtual objects, which coexist in the same real world.” (Expert System with Applications, p.191) This means that AR players can find themselves with accidents while playing in the real world with VR.

On the other hand, AR can help patients with their rehabilitation, “[the] technology appears not ready for general practical use but the encouraging results support further research.” (Systematic Review, p.16) AR has come to not only be known as a new part of VR in which danger can be brought to its users, but it can also be incorporated and implemented in such a way that it can be beneficial medically. AR supplements reality but does not replace it. It is explained in the article “Augmented reality applications in rehabilitation to improve physical outcomes” that the use of AR systems with patients to see their hands and movements while interacting with the application and the environment. The Systematic review has conducted a series of studies in which AR is conducted, “AR interventions were included only if their primary aim was to enhance physical function”, and

not psychological, or sensory function.”(Systematic Review, p.17) There were two studies in which “visual cue glasses” and “head-mounted” cameras were used with 20 participants. The results show that AR systems generated a view of real time virtual images, while VR provided real-time realistic motivating environment because it doesn’t have any physical objects to work with. However, participants who wear the headset say “it was too heavy to use” therefore, if AR is going to be used to help patients recover, it must first be re-examined to find a more comfortable way to be worn or to made a new headset. Likewise, augmented reality can be used in higher education, it came bring students to collaborate and be more interactive and involved in classroom activities. It was already demonstrated “that virtual learning applications... allow users to learn in a quick and efficient way, interacting with virtual environments” (Computer in Human Behavior, p.752). AR has the potential of being used to collaborate with both the virtual and physical world. The coexistence of two worlds leads to the interaction with the real world and 3D objects. So even when AR in games might damage and physiologically speaking dispose of the real world, it has come to a point where it might not be a bad idea to consider it beneficial in the area of education.

Adapting AR to perform in a classroom needs to have requirements as well. Technology is an amazing tool, but it has to be used moderately. We have seen that VR has its ups and downs such as sionChicken and Pokémon Go that use AR. Therefore, taking precautions and “proposing design requirements” need to be considered before putting it for classroom use. The culture and the reality have crossed paths multiple times and it came to be “argued about when life begins... can life be extended mechanically, artificially... [and] the debate about our rights to decide when we die... [as well as] the denial of age” (The real, the virtual, and the moral, p.220) If by living in a virtual world, personalities can be assumed to be real and “it is within the context of the real that the virtual is conceived” (The real, the virtual, and the moral, p.224) and without appropriate ethical guidance, people are “unable to differentiate among the various realities – unable to sort the good from the bad.” (The real, the virtual, and the moral, p.224) Bivins & Newton’s journal does not just conclude there, but it is also mentioned that in the same manner if someone loses touch with the conscious physical world they can become lost within the subconscious non-physical world. This means that if the physical world in which a

person lives is affected deeply it can confuse and lead their subconscious to created “a place that appears to be so divorced from that from which we came” (The real, the virtual, and the moral, p.224)

Arguably, it is obvious that AR and VR will become the next sensation, and with them, ethical and moral issues will arise as they are implemented and build. Without any doubt AR and VR can cause physiological distress and attachment to an avatar or life that’s not real. “Avatar attachment is expressive of identity and self-conception and should therefore be accorded the moral significance [that is] given to real-life attachments” (Wolfendale, p.112) that can lead to an emotional impact to users (players). Unfortunately, VR has come to be part of the life of its user (player) and has created communities that have similar problems as the real world. To name a few, there is stalking, killing, sexual harassment, stealing, and torture. Moral values are getting lost in the virtual world and in the real world. In the same way, AR has come to be a security problem; it brings cloud security into a major data collection of every move and every action that has been done by the user. For example, companies such as Microsoft, Apple and Google with Google glass and other known “wearable computers” (Hyman, p.18) Hyman mentions that Johns Hopkins Information Security Institute AR glasses will be collecting everything the user sees, everything that is said, “sending it in real time for Google to process and to respond with relevant information.” (Hyman, p.18) He implies that AR glasses are not different than any application that collects users’ data or is saved in their own clouds. Such information is being processed for free in exchange for information that they obtain when the user agrees to the term of services. So, if AR and VR weren’t that different would the world be more aggressive in terms of behavior and moral expectations? It could be. Under those circumstances, “worlds are *Hobbesian* worlds *where participation is a free choice and offence does not count as harm*” (Wolfendale, p.112) Therefore, the ethical framework in this case is consequentialism. Consequentialism focuses on the future effects of possible courses of action that have come into play with AR and VR throughout the virtual and real world. People are always being affected and have indirectly affected others such as family members and to themselves. It also affects the community in which they live whether in the game or in the real world.

Then again, how many times does a child wish to fly or be a super hero? How many cried when they found out that Santa wasn’t real? There are things that cannot be possible and cannot change life as it is.

Technology is taking a big step to bring the best out of virtual reality, but does the best need to take people from their reality? These are some questions that I ask myself. AR does corrupt us on how to make ethical decisions, as it was mentioned throughout this paper, it does not only create the notion that there are no laws and privacy, but the products that will make AR unstoppable will also make its users and everyone around them take part in the change. The government will be able to track anyone faster and easier using AR devices. Not everyone will be able to afford such devices. Therefore, the government needs to implement new laws that restrict not only users but also companies and developers of AR and VR to ensure regulations are in place and the safety of its users is prioritized. At the end there is only one option available for users that is to opt out.

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